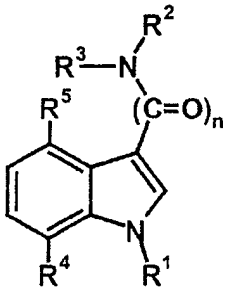
Claims

1. Hydroxyindoles of the general formula 1,



1

in which
n can be = 1 or 2, and

R^1

(i) is $-C_{1-10}$-alkyl, which is straight-chain or branched and optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NHC_{6-14}$aryl, $-N(C_{6-14}\text{aryl})_2$, $-N(C_{16}\text{alkyl})(C_{6-14}\text{aryl})$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-O-C_{6-14}$-aryl, $-S-C_{1-6}$-alkyl, $-S-C_{6-14}$aryl, $-SO_3H$, $-SO_2C_{1-6}$alkyl, $-SO_2C_{6-14}$aryl, $-OSO_2C_{1-6}$alkyl, $-OSO_2C_{6-14}$aryl, -COOH, $-(CO)C_{15}$alkyl or $-O(CO)C_{1-5}$alkyl, by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated carbocycles having 3-14 ring members, or by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated heterocycles having 5-15 ring members and 1-6 heteroatoms which are preferably N, O and S, where the C_{6-14}aryl groups and the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by $-C_{1-6}$-alkyl, -OH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-S-C_{1-6}$-alkyl, $-SO_3H$,

$-SO_2C_{1-6}$alkyl, $-OSO_2C_{1-6}$alkyl, -COOH, $-(CO)C_{1-5}$alkyl or $-O(CO)C_{1-5}$alkyl, and where the alkyl groups on the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, -F, -Cl, -Br, -I, $-SO_3H$ or -COOH, or

(ii) is $-C_{2-10}$-alkenyl, which is monounsaturated or polyunsaturated, straight-chain or branched and optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}$-alkyl$)_2$, $-NHC_{6-14}$aryl, $-N(C_{6-14}$aryl$)_2$, $-N(C_{1-6}$alkyl$)(C_{6-14}$-aryl), $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-O-C_{6-14}$-aryl, $-S-C_{1-6}$-alkyl, $-S-C_{6-14}$aryl, $-SO_3H$, $-SO_2C_{1-6}$alkyl, $-SO_2C_{6-14}$aryl, $-OSO_2C_{1-6}$alkyl, $-OSO_2C_{6-14}$-aryl, -COOH, $-(CO)C_{1-5}$-alkyl or $-O(CO)C_{1-5}$alkyl, by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated carbocycles having 3-14 ring members, or by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated heterocycles having 5-15 ring members and 1-6 heteroatoms which are preferably N, O and S, where the C_{6-14}aryl groups and the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by $-C_{1-6}$-alkyl, -OH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}$-alkyl$)_2$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-S-C_{1-6}$-alkyl, $-SO_3H$, $-SO_2C_{1-6}$alkyl, $-OSO_2C_{1-6}$alkyl, -COOH, $-(CO)C_{1-5}$alkyl or $-O(CO)C_{1-5}$alkyl, and where the alkyl groups on the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, -F, -Cl, -Br, -I, $-SO_3H$ or -COOH,

R^2 and R^3

(i) are, in each case independently of each other, hydrogen or $-C_{1-5}$-alkyl,

which is optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-S-C_{1-6}$-alkyl, -phenyl or -pyridyl,

-phenyl,

which is optionally substituted, once or more than once, by $-C_{1-3}$-alkyl, -OH, -SH, $-NH_2$, $-NHC_{1-3}$-alkyl, $-N(C_{1-3}\text{-alkyl})_2$, $-NO_2$, -CN, -COOH, $-COOC_{1-3}$-alkyl, -F, -Cl, -Br, -I, $-O-C_{1-3}$-alkyl, $-S-C_{1-3}$-alkyl or $-O(CO)-C_{1-3}$-alkyl,

-pyridyl,

which is optionally substituted, once or more than once, by $-C_{1-3}$-alkyl, -OH, -SH, $-NO_2$, -CN, -COOH, $-COOC_{1-3}$-alkyl, -F, -Cl, -Br, -I, $-O-C_{1-3}$-alkyl, $-S-C_{1-3}$-alkyl or $-O(CO)-C_{1-3}$-alkyl,

where only one of R^2 and R^3 is hydrogen and where the alkyl groups on the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, -F, -Cl, -Br, -I, $-SO_3H$, -COOH, $-(CO)-C_{1-5}$-alkyl, or $-O(CO)C_{1-5}$-alkyl, or

(ii) NR^2R^3 together form a saturated or unsaturated five-membered or six-membered ring which can contain up to 3 heteroatoms, preferably N, S and O, and which is optionally substituted, once or more than once, by $-C_{1-3}$-alkyl, -OH, -SH, $-NO_2$, -CN, -COOH, $-COOC_{1-3}$-alkyl, -F, -Cl, -Br, -I, $-O-C_{1-3}$-alkyl, $-S-C_{1-3}$-alkyl or $-O(CO)-C_{1-3}$-alkyl,

R^4 and R^5 are -H or -OH, where at least one of the two must be -OH, or salts of the compounds according to formula 1.

2. Compounds according to formula 1 according to Claim 1 having an asymmetric carbon atom in the D form or L form, or D,L mixtures or, when more than one asymmetrical carbon atom is present, the diastereomeric forms.

3. Compounds according to Claim 1 or 2, characterized in that n = 2.

4. Compounds according to one of Claims 1 to 3, characterized in that R^4 = -OH and R^5 = -H.

5. Compounds according to one of Claims 1 to 4, characterized in that $-NR^2R^3$ is a phenylamino or pyridylamino which is substituted by one or more halogen atoms.

6. Compounds according to one of Claims 1 to 4, characterized in that R^1 is a substituted benzyl radical.

7. Compounds according to Claim 6, characterized in that the benzyl radical contains at least one substituent in the ortho position on the phenyl ring.

8. Compounds according to formula 1 according to one of Claims 1 to 7 selected from:

N-(3,5-dichloropyridin-4-yl)-[1-(4-fluorobenzyl)-4-hydroxyindol-3-yl]carboxamide,

N-(3,5-dichloropyridin-4-yl)-[1-(4-chlorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-chlorobenzyl)-7-hydroxyindol-3-yl]carboxamide,

N-(3,5-dichloropyridin-4-yl)-[1-(4-fluorobenzyl)-4-hydroxyindol-3-yl]glyoxyamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(3-nitrobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,6-difluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,4-difluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-chlorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,6-dichlorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-methylbenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,6-dimethylbenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-(1-hexyl-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-(1-isobutyl-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-(1-cyclopropylmethyl-7-hydroxyindol-3-yl]glyoxylamide,
N-(2,6-dichlorophenyl)-[1-(4-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(2,6-dichlorophenyl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,

N-(4-pyridyl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-pyridylmethyl)-7-hydroxyindol-3-yl]glyoxylamide,
1-(4-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylic acid piperidide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-hydroxybenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-chloro-6-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-trifluoromethylbenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-methyl-N-(pyridin-4-yl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(2,6-dimethylpyridin-4-yl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-carboxybenzyl)-7-hydroxyindol-3-yl]glyoxylamide,

and physiologically tolerated salts thereof.

9. Process for preparing compounds according to formula 1 according to Claim 1 in which n = 1, characterized in that indole-3-carboxylic acids of the formula 2 are converted, using acid chlorides, into the analogous indole-3-carbonyl chloride of the formula 3, the latter are converted into the corresponding amides by reaction with primary and secondary amines, and the compounds according to formula 1, in which n = 1, are liberated by eliminating a protecting group.

10. Process according to Claim 9, characterized in that thionyl chloride or oxalyl chloride are used as acid chlorides for synthesizing the indole-3-carbonyl chlorides according to formula 3.

11. Process according to Claim 9 or 10, characterized in that the indole-3-carbonyl chlorides according to formula 3 are reacted with primary or secondary amines in the presence of an auxiliary base, preferably in the presence of an excess of the amine employed as coreactant, of a tertiary amine, for example of pyridine or triethylamine, and also of inorganic bases, preferably alkali metal hydroxides or alkali metal hydrides.

12. Process for preparing compounds according to formula 1 according to Claim 1 in which n = 2, characterized in that indoles of the formula 4 are converted, using oxalyl chloride, into the analogous indol-3-ylglyoxylyl chlorides of the formula 5, the latter are converted into the corresponding amides by reaction with primary or secondary amines, and the compounds according to formula 1, in which n = 2, are liberated by eliminating a protecting group.

13. Process according to Claim 12, characterized in that indol-3-ylglyoxylyl chlorides according to formula 5 are reacted with primary or secondary amines in the presence of an auxiliary base, preferably in the presence of an excess of the amine employed as coreactant, of a tertiary amine, for example of pyridine or triethylamine, and also of inorganic bases, preferably alkali metal hydroxides or alkali metal hydrides.

14. Use of the compounds according to formula 1 according to one of Claims 1 to 8 as therapeutic active compounds for producing pharmaceuticals for treating diseases in which inhibiting phosphodiesterase 4 is of therapeutic value.

15. Use of the compounds according to formula 1 according to one of Claims 1 to 8 as therapeutic active compounds for producing pharmaceuticals for treating diseases which are associated with the activity of eosinophils.

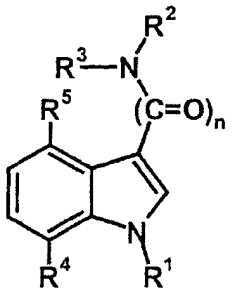
16. Use of the compounds according to formula 1 according to one of Claims 1 to 8 as therapeutic active compounds for producing pharmaceuticals for treating diseases which are associated with the activity of neutrophils.

17. Pharmaceuticals which comprise one or more compounds according to Claims 1 to 8 in addition to customary, physiologically tolerated excipients and/or diluents or auxiliary substances.

18. Process for producing a pharmaceutical according to Claim 17,
characterized in that
one or more compounds according to one of Claims 1 to 8, together with customary pharmaceutical carrier substances and/or diluents or other auxiliary substances, is/are processed into pharmaceutical preparations or brought into a form which can be used therapeutically.

19. Use of compounds of the general formula 1 according to one of Claims 1 to 8 and/or pharmaceuticals as claimed in Claim 17 in combination with each other or in combination with other pharmaceutical active compounds.

20. A hydroxyindole of formula 1,



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wherein
n is 1 or 2, and

R^1

(i) is $-C_{1-10}$-alkyl, which is straight-chain or branched and optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NHC_{6-14}$aryl, $-N(C_{6-14}\text{aryl})_2$, $-N(C_{16}\text{alkyl})(C_{6-14}\text{aryl})$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-O-C_{6-14}$-aryl, $-S-C_{1-6}$-alkyl, $-S-C_{6-14}$aryl, $-SO_3H$, $-SO_2C_{1-6}$alkyl, $-SO_2C_{6-14}$aryl, $-OSO_2C_{1-6}$alkyl, $-OSO_2C_{6-14}$aryl, -COOH, $-(CO)C_{15}$alkyl or $-O(CO)C_{1-5}$alkyl, by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated carbocycles having 3-14 ring members, or by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated heterocycles having 5-15 ring members and 1-6 heteroatoms which are preferably N, O and S, where the C_{6-14}aryl groups and the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by $-C_{1-6}$-alkyl, -OH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-S-C_{1-6}$-alkyl, $-SO_3H$, $-SO_2C_{1-6}$alkyl, $-OSO_2C_{1-6}$alkyl, -COOH, $-(CO)C_{1-5}$alkyl or $-O(CO)C_{1-5}$alkyl, and where the

alkyl groups on the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, -F, -Cl, -Br, -I, $-SO_3H$ or -COOH, or

(ii) is $-C_{2-10}$-alkenyl, which is monounsaturated or polyunsaturated, straight-chain or branched and optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NHC_{6-14}$aryl, $-N(C_{6-14}\text{aryl})_2$, $-N(C_{1-6}\text{alkyl})(C_{6-14}\text{-aryl})$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-O-C_{6-14}$-aryl, $-S-C_{1-6}$-alkyl, $-S-C_{6-14}$aryl, $-SO_3H$, $-SO_2C_{1-6}$alkyl, $-SO_2C_{6-14}$aryl, $-OSO_2C_{1-6}$alkyl, $-OSO_2C_{6-14}$-aryl, -COOH, $-(CO)C_{1-5}$-alkyl or $-O(CO)C_{1-5}$alkyl, by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated carbocycles having 3-14 ring members, or by mono-, bi- or tricyclic saturated or monounsaturated or polyunsaturated heterocycles having 5-15 ring members and 1-6 heteroatoms which are preferably N, O and S, where the C_{6-14}aryl groups and the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by $-C_{1-6}$-alkyl, -OH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-S-C_{1-6}$-alkyl, $-SO_3H$, $-SO_2C_{1-6}$alkyl, $-OSO_2C_{1-6}$alkyl, -COOH, $-(CO)C_{1-5}$alkyl or $-O(CO)C_{1-5}$alkyl, and where the alkyl groups on the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, -F, -Cl, -Br, -I, $-SO_3H$ or -COOH,

R^2 and R^3

(i) are, in each case independently of each other, hydrogen or $-C_{1-5}$-alkyl,
which is optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, $-NHC_{1-6}$-alkyl, $-N(C_{1-6}\text{-alkyl})_2$, $-NO_2$, -CN, -F, -Cl, -Br, -I, $-O-C_{1-6}$-alkyl, $-S-C_{1-6}$-alkyl, -phenyl or -pyridyl,
-phenyl,
which is optionally substituted, once or more than once, by $-C_{1-3}$-alkyl, -OH, -SH, $-NH_2$, $-NHC_{1-3}$-alkyl, $-N(C_{1-3}\text{-alkyl})_2$, $-NO_2$, -CN, -COOH, $-COOC_{1-3}$-alkyl, -F, -Cl, -Br, -I, $-O-C_{1-3}$-alkyl, $-S-C_{1-3}$-alkyl or $-O(CO)-C_{1-3}$-alkyl,
-pyridyl,
which is optionally substituted, once or more than once, by $-C_{1-3}$-alkyl, -OH, -SH, $-NO_2$, -CN, -COOH, $-COOC_{1-3}$-alkyl, -F, -Cl, -Br, -I, $-O-C_{1-3}$-alkyl, $-S-C_{1-3}$-alkyl or $-O(CO)-C_{1-3}$-alkyl,
where only one of R^2 and R^3 is hydrogen and where the alkyl groups on the carbocyclic and heterocyclic substituents can, for their part, be optionally substituted, once or more than once, by -OH, -SH, $-NH_2$, -F, -Cl, -Br, -I, $-SO_3H$, -COOH, $-(CO)-C_{1-5}$-alkyl, or $-O(CO)C_{1-5}$-alkyl, or

(ii) NR^2R^3 together form a saturated or unsaturated five-membered or six-membered ring which can contain up to 3 heteroatoms, preferably N, S and O, and which is optionally substituted, once or more than once, by $-C_{1-3}$-alkyl, -OH, -SH, $-NO_2$, -CN, -COOH, $-COOC_{1-3}$-alkyl, -F, -Cl, -Br, -I, $-O-C_{1-3}$-alkyl, $-S-C_{1-3}$-alkyl or $-O(CO)-C_{1-3}$-alkyl,

R^4 and R^5 are -H or -OH, where at least one of the two must be -OH, or salts of the compounds according to formula 1.

21. A compound according to claim 20, wherein said compound has an asymmetric carbon atom in the D form or L form, or D,L mixtures or, when more than one asymmetrical carbon atom is present, the diastereomeric forms.

22. A compound according to claim 20, wherein n is 2.

23. A compound according to claim 20, wherein R^4 = -OH and R^5 = -H.

24. A compound according to claim 20, wherein $-NR^2R^3$ is a phenylamino or pyridylamino which is substituted by one or more halogen atoms.

25. A compound according to claim 20, wherein R^1 is a substituted benzyl radical.

26. A compound according to claim 25, wherein the benzyl radical contains at least one substituent in the ortho position on the phenyl ring.

27. A compound according to Claim 20 selected from the group consisting

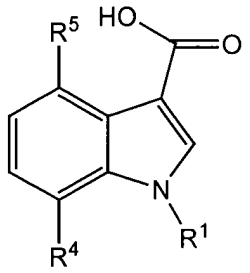
N-(3,5-dichloropyridin-4-yl)-[1-(4-fluorobenzyl)-4-hydroxyindol-3-yl]carboxamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-chlorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-chlorobenzyl)-7-hydroxyindol-3-yl]carboxamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-fluorobenzyl)-4-hydroxyindol-3-yl]glyoxyamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,

N-(3,5-dichloropyridin-4-yl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(3-nitrobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,6-difluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,4-difluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-chlorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,6-dichlorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-methylbenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2,6-dimethyl-benzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-(1-hexyl-7-hydroxy-indol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-(1-isobutyl-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-(1-cyclopropylmethyl-7-hydroxyindol-3-yl]glyoxylamide,
N-(2,6-dichlorophenyl)-[1-(4-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(2,6-dichlorophenyl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(4-pyridyl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(4-pyridylmethyl)-7-hydroxyindol-3-yl]glyoxylamide,
1-(4-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylic acid piperidide,

N-(3,5-dichloropyridin-4-yl)-[1-(4-hydroxybenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-chloro-6-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(3,5-dichloropyridin-4-yl)-[1-(2-trifluoromethylbenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-methyl-N-(pyridin-4-yl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide,
N-(2,6-dimethylpyridin-4-yl)-[1-(2-fluorobenzyl)-7-hydroxyindol-3-yl]glyoxylamide, and
N-(3,5-dichloropyridin-4-yl)-[1-(2-carboxybenzyl)-7-hydroxyindol-3-yl]glyoxylamide,

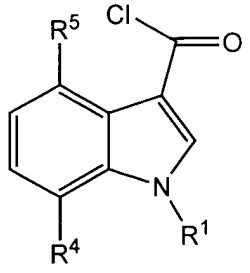
and physiologically tolerated salts thereof.

28. A process for preparing a compound according to claim 20 comprising reacting an indole-3-carboxylic acid of formula 2:



formula 2

with an acid chloride to form the analogous indole-3-carbonyl chloride of the formula 3



formula 3

reacting the compound of formula 3 with a primary and a secondary amine to form the corresponding amide and eliminating a protecting group to form a compound of formula 1, wherein n = 1.

29. A process according to claim 28, wherein said acid chloride is thionyl chloride or oxalyl chloride to synthesize the indole-3-carbonyl chlorides according to formula 3.

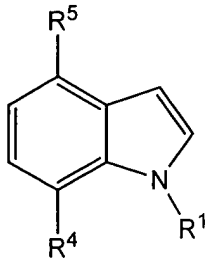
30. A process according to claim 28, wherein said indole-3-carbonyl chloride according to formula 3 are reacted with primary or secondary amines in the presence of an auxiliary base.

31. A process according to claim 28, wherein said indole-3-carbonyla chloride is reacted with a primaror secondary amine in the presence of an excess of amine.

32. A process according to claim 31, wherein the excess amine is a tertiary amine.

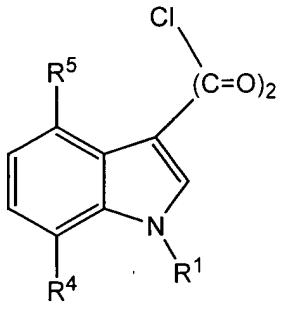
33. A process according to claim 30, wherein indole-3-carbonyl chloride is reacted in the presence of an inorganic base.

34. A process for preparing a compound according to Claim 1, comprising reacting an indole formula 4



formula 4

with oxalyl chloride to form the analogous indol-3-ylglyoxylyl chloride of formula 5



formula 5

reacting the compound of formula 5 with a primary or secondary amine to form the corresponding amide and eliminating a protecting group to form a compound according to formula 1, wherein n is 2.

35. A process according to claim 34, wherein indol-3-ylglyoxylyl chlorides according to formula 5 are reacted with primary or secondary amines in the presence of an auxiliary base.

36. A method for inhibiting PDE 4 comprising administering a sufficient amount of a compound of claim 20 to a subject to inhibit PDE 4.

37. A method for treating a disease associated with the activity of eosinophils, comprising administering a therapeutically effective amount of a compound according to claim 20 to a subject in need thereof.

38. A method for treating a disease associated with the activity of neutrophils comprising administering a therapeutically effective amount of a compound according to claim 20 to a subject in need thereof.

39. A pharmaceutical dosage form comprising at least one compound according to claim 20 and at least one of a customary, physiologically tolerated excipient, diluent or auxiliary substance.

40. A process for producing a pharmaceutical according to claim 39, comprising admixing at least one compound according to claim 20 with a customary pharmaceutical carrier substance, a diluent or an auxiliary substance to form a therapeutically desirable pharmaceutical preparation.

41. A method of treating modifying the activity of PDE 4 in a subject in need thereof comprising administering the dosage form of claim 39 to a subject in need thereof, optionally with a different therapeutically active agent.